

## PCT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

PELLMANN, Hans-Bernd  
Tiedtke-Bühling-Kinne  
Bavariaring 4  
D-80336 München  
ALLEMAGNE

Date of mailing (day/month/year) 14 January 2002 (14.01.02)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference WO 24038	
International application No. PCT/EP99/06951	International filing date (day/month/year) 20 September 1999 (20.09.99)

## 1. The following indications appeared on record concerning:

☒ the applicant
                 
 ☐ the inventor
                 
 ☐ the agent
                 
 ☐ the common representative

Name and Address NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No. +358 9 1807 0	
	Facsimile No. +358 9 1807 496	
	Teleprinter No.	

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person
                 
 ☒ the name
                 
 ☐ the address
                 
 ☐ the nationality
                 
 ☐ the residence

Name and Address NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No. +358 9 1807 0	
	Facsimile No. +358 9 1807 496	
	Teleprinter No.	

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer R. Raissi Telephone No.: (41-22) 338.83.38
---	---

## PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 18 June 2001 (18.06.01)	
International application No. PCT/EP99/06951	Applicant's or agent's file reference WO 24038
International filing date (day/month/year) 20 September 1999 (20.09.99)	Priority date (day/month/year)
Applicant VIHRIÄLÄ, Jaakko	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

20 April 2001 (20.04.01)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

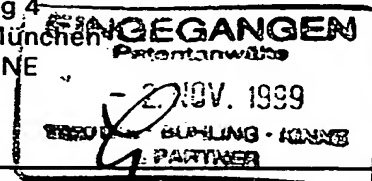
From the INTERNATIONAL BUREAU

NOTIFICATION OF RECEIPT OF  
RECORD COPY

(PCT Rule 24.2(a))

To:

PELLMANN, Hans-Bernd  
Tiedtke-Bühling-Kinne  
Bavariaring 4  
D-80336 München  
ALLEMAGNE



Date of mailing (day/month/year) 27 October 1999 (27.10.99)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference WO 24038	International application No. PCT/EP99/06951

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

NOKIA TELECOMMUNICATIONS OY (for all designated States except US)  
VIHRIÄLÄ, Jaakko (for US)

International filing date : 20 September 1999 (20.09.99)  
Priority date(s) claimed :  
Date of receipt of the record copy by the International Bureau : 20 October 1999 (20.10.99)  
List of designated Offices :

AP : GH,GM,KE,LS,MW,SD,SL,SZ,UG,ZW  
EA : AM,AZ,BY,KG,KZ,MD,RU,TJ,TM  
EP : AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE  
OA : BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG  
National : AE,AL,AM,AT,AU,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CU,CZ,DE,DK,EE,ES,FI,GB,GD,GE,  
GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KP,KR,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,  
NO,NZ,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,US,UZ,VN,YU,ZA,ZW

## ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase  
☒ confirmation of precautionary designations  
☐ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer:  R. Chrem
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

**INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE**

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated in the Notification of Receipt of Record Copy (Form PCT/IB/301) by paying national fees and furnishing translations, as prescribed by the applicable national laws.

The time limit for performing these procedural acts is **20 MONTHS** from the priority date or, for those designated States which the applicant elects in a demand for international preliminary examination or in a later election, **30 MONTHS** from the priority date, provided that the election is made before the expiration of 19 months from the priority date. Some designated (or elected) Offices have fixed time limits which expire even later than 20 or 30 months from the priority date. In other Offices an extension of time or grace period, in some cases upon payment of an additional fee, is available.

In addition to these procedural acts, the applicant may also have to comply with other special requirements applicable in certain Offices. It is the applicant's responsibility to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most designated Offices do not issue reminders to applicants in connection with the entry into the national phase.

For detailed information about the procedural acts to be performed to enter the national phase before each designated Office, the applicable time limits and possible extensions of time or grace periods, and any other requirements, see the relevant Chapters of Volume II of the PCT Applicant's Guide. Information about the requirements for filing a demand for international preliminary examination is set out in Chapter IX of Volume I of the PCT Applicant's Guide.

GR and ES became bound by PCT Chapter II on 7 September 1996 and 6 September 1997, respectively, and may, therefore, be elected in a demand or a later election filed on or after 7 September 1996 and 6 September 1997, respectively, regardless of the filing date of the international application. (See second paragraph above.)

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

**CONFIRMATION OF PRECAUTIONARY DESIGNATIONS**

This notification lists only specific designations made under Rule 4.9(a) in the request. It is important to check that these designations are correct. Errors in designations can be corrected where precautionary designations have been made under Rule 4.9(b). The applicant is hereby reminded that any precautionary designations may be confirmed according to Rule 4.9(c) before the expiration of 15 months from the priority date. If it is not confirmed, it will automatically be regarded as withdrawn by the applicant. There will be no reminder and no invitation. Confirmation of a designation consists of the filing of a notice specifying the designated State concerned (with an indication of the kind of protection or treatment desired) and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.

**REQUIREMENTS REGARDING PRIORITY DOCUMENTS**

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity to furnish the priority document within a time limit which is reasonable under the circumstances.

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit is the filing date of the earliest application whose priority is claimed.

## PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

PELLMANN, Hans-Bernd

Tiedtke-Bühling-Kinne **GEGANGEN**

Bavaria 4

D-80336 München 10. DEZ. 1999

ALLEMAGNE

TIEDTKE - BÜHLING - KINNE  
A PARTNER

Date of mailing (day/month/year) 06 December 1999 (06.12.99)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference WO 24038	
International application No. PCT/EP99/06951	International filing date (day/month/year) 20 September 1999 (20.09.99)

1. The following indications appeared on record concerning:									
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative								
Name and Address NOKIA TELECOMMUNICATIONS OY Keilalahdentie 4 FIN-02150 Espoo Finland	<table border="1"> <tr> <td>State of Nationality FI</td> <td>State of Residence FI</td> </tr> <tr> <td colspan="2">Telephone No. +358 9 1807 0</td> </tr> <tr> <td colspan="2">Facsimile No. +358 9 1807 496</td> </tr> <tr> <td colspan="2">Teleprinter No.</td> </tr> </table>	State of Nationality FI	State of Residence FI	Telephone No. +358 9 1807 0		Facsimile No. +358 9 1807 496		Teleprinter No.	
State of Nationality FI	State of Residence FI								
Telephone No. +358 9 1807 0									
Facsimile No. +358 9 1807 496									
Teleprinter No.									
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:									
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence								
Name and Address NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	<table border="1"> <tr> <td>State of Nationality FI</td> <td>State of Residence FI</td> </tr> <tr> <td colspan="2">Telephone No. +358 9 1807 0</td> </tr> <tr> <td colspan="2">Facsimile No. +358 9 1807 496</td> </tr> <tr> <td colspan="2">Teleprinter No.</td> </tr> </table>	State of Nationality FI	State of Residence FI	Telephone No. +358 9 1807 0		Facsimile No. +358 9 1807 496		Teleprinter No.	
State of Nationality FI	State of Residence FI								
Telephone No. +358 9 1807 0									
Facsimile No. +358 9 1807 496									
Teleprinter No.									
3. Further observations, if necessary:									
4. A copy of this notification has been sent to:									
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned								
<input checked="" type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned								
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Beate Giffö-Schmitt
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

## PATENT COOPERATION TREATY

PCT

NOTICE INFORMING THE APPLICANT OF THE  
COMMUNICATION OF THE INTERNATIONAL  
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

PELLMANN, Hans-Bernd  
Tiedtke-Bühling-Kinne  
Bavariaring 4  
D-80336 München  
ALLEMAGNE**EINGEGANGEN**  
Patentanwälte  
- 9. April 2001  
TIEDTKE · BÜHLING · KINNE  
& PARTNER (GbR)

Date of mailing (day/month/year) 29 March 2001 (29.03.01)		<b>IMPORTANT NOTICE</b>	
Applicant's or agent's file reference WO 24038			
International application No. PCT/EP99/06951	International filing date (day/month/year) 20 September 1999 (20.09.99)	Priority date (day/month/year)	
Applicant NOKIA NETWORKS OY et al			

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:  
**AU,KP,KR,US**

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CU,CZ,DE,DK,EA,EE,EP,ES,FI,GB,GD,GE,GH,  
GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,  
PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,UZ,VN,YU,ZA,ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on  
29 March 2001 (29.03.01) under No. WO 01/22620

**REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)**

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

**REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))**

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

INFORMATION CONCERNING ELECTED  
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

From the INTERNATIONAL BUREAU

To:

PELLMANN, Hans-Bernd

Tiedtke-Bühling-Kinne

Bavariaring 4

D-80336 München

ALLEMAGNE

**ANGEKINGEGANGEN**  
Patentanwälte  
25. Juni 2001  
TIEDTKE · BÜHLING · KINNE  
& PARTNER (GbR)

Date of mailing (day/month/year) 18 June 2001 (18.06.01)		IMPORTANT INFORMATION	
Applicant's or agent's file reference WO 24038			
International application No. PCT/EP99/06951	International filing date (day/month/year) 20 September 1999 (20.09.99)	Priority date (day/month/year)	
Applicant NOKIA NETWORKS OY et al			

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, CA, CN, CZ, DE, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

AP : GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AE, AL, AM, AT, AZ, BA, BB, BR, BY, CH, CU, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IN, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL,  
TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer: Juan Cruz Telephone No. (41-22) 338.83.38
--	---

TBK

TIEDTKE - BÜHLING - KINNE PARTNER (GbR)

JC13 Rec'd PCT/PTO 13 FEB 2002

10/049589



TBK-Patent POB 20 19 18 80019 München

An das  
Europäische Patentamt

80298 München

Patentanwälte

Dipl.-Ing. Harro Tiedtke  
Dipl.-Ing. Reinhard Kinne  
Dipl.-Ing. Hans-Bernd Pellmann  
Dipl.-Ing. Klaus Grams  
Dipl.-Ing. Aurel Vollnhals  
Dipl.-Ing. Thomas J.A. Leson  
Dipl.-Ing. Dr. Georgi Chivarov  
Dipl.-Ing. Matthias Grill  
Dipl.-Ing. Hans-Ludwig Trösch  
Dipl.-Ing. Alexander Kühn  
Dipl.-Ing. Rainer Böckelen  
Dipl.-Ing. Stefan Klingele  
Dipl.-Chem. Stefan Bühling  
Dipl.-Ing. Ronald Roth

November 5, 2001

PCT Patent Application No.: PCT/EP99/06951  
NOKIA NETWORKS OY  
Our ref.: WO 24038

(F: 03.11.01, Eing.)

Reference is made to the Written Opinion pursuant to Rule  
66 PCT dated August 3, 2001.

In the following, arguments in favour of the claims as  
presently on file are presented.

It is intended to effect necessary amendments to the  
description and, if necessary, amendments regarding clarity  
of the claims (in particular with respect to item V.2 of  
the above-referenced Written Opinion) in the  
regional/national phase.

As described in detail in the introductory part of the  
present application, the object underlying the present  
invention is to provide a method and a device by which  
during a handover a fast detection of a propagation delay  
between a mobile station and a new base station is  
possible.

This object is solved by a method of performing  
synchronisation between a mobile network device and a  
network control device as set out in the original

Dresdner Bank München Kto. 3939 844 BLZ 700 800 00  
Deutsche Bank München Kto. 286 1060 BLZ 700 700 10  
Postbank München Kto. 67043 804 BLZ 700 100 80  
Dai-ichi-Kangyo Bank Düsseldorf Kto. 8104233007 BLZ 300 207 00  
Sanwa Bank Düsseldorf Kto. 500 047 BLZ 301 307 00

/36

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E-Mail: postoffice@tbk-patent.de  
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Bavariaring 4-6, 80336 München



independent claim 1, and alternatively by a network control device as set out in the original independent claim 9.

In detail, according to the measures as described in the above independent claims, a search strategy for determining a correct propagation value is carried out. This search strategy uses a start propagation value, which is determined based on a source radio network region of the mobile network device.

That is, that radio network region (e.g., cell) from which the mobile network device performs a handover to the new radio network region is detected. Based on this radio network region, a start value of the propagation delay is determined. Namely, suitable start values for neighbouring cells are stored beforehand and are used to generate a start value for the search of the correct propagation delay.

Hence, the correct propagation delay can be found very fast.

This measure is neither shown in document document US 5 394 158 (document D1) nor in document WO-A-98/15150 (document D2).

Thus, the subject-matter of the original independent claims 1 and 9 is new.

However, it also involves the required inventive step.

In detail, document D1 describes a system, in which a propagation delay is measured in order to determine the location of a mobile station, i.e., the distance to a base station. As can be taken from column 5, lines 23 to 25, the

base station performs a propagation delay test by monitoring the timing advance. That is, the synchronisation has already been completed, such that document D1 is directed to problem which is completely different to that of the present application.

Moreover, according to document D1 in the base station pairs of signal strength and timing advance are stored, as described in column 5, lines 31 to 45. That is, the actual propagation delay is determined based on fixed values for the timing advance stored previously.

In contrast thereto, according to the present application, the timing advance values with respect to the new base station are not yet known. To the contrary, these values are to be detected along with the propagation value.

Thus, a person skilled in the art could not get any suggestions from document D1 which would lead him to the subject-matter of the original independent claims 1 and 9 without involving an inventive activity.

Document D2 describes a method for determining the location of a mobile station. According to this method, a handover of the mobile station to different base stations is initiated, but not completed, such that the mobile station maintains connected to the original base station. During the not completed handover, time delay measurements of the other base stations are utilised in order to determine the position.

That is, a handover is not fully completed. That is, also document D2 is directed to another problem than that underlying the present application, since also here there

is no need for performing a synchronisation since the mobile station is still connected to the old base station.

Hence, also document D2 could not have inspired a person skilled in the art such that the subject-matter of the original independent claims 1 and 9 would have become obvious to him without requiring an inventive activity.

But also a combination of both documents could not suggest the subject-matter of the original independent claims 1 and 9. Apart from the fact that none of these documents describe a synchronisation during a regular handover (as already stated above), according to claims 1 and 9 a search strategy is used in which a start value is "guessed" based on previous handovers. The cited documents D1 and D2 each fail to teach such a measure.

Namely, in documents D1 and D2, it is only described that the timing advance is actually measured and that the measured values of the timing advance are used to determine the propagation delay.

In contrast thereto, according to the present application the propagation delay is searched by using the search strategy in which a start value is used which is then, e.g., stepwise approximated to the real propagation delay value by performing iterations (page 8, lines 19 to 23 of the present application).

Therefore, also the combination of documents D1 and D2 could not lead a person skilled in the art to the subject-matter of the original claims 1 and 9 without involving an inventive step.

Thus, it is respectfully submitted that the new independent claims 1 and 9 show a patentable subject-matter.

The International Preliminary Examination Authority is therefore respectfully invited to reconsider its opinion on the patentability of the claimed subject matter in the light of the arguments as presented herein above prior to establishing the (final) International Preliminary Examination Report.

Thomas J.A. Leson  
Patentanwalt  
**TBK-Patent**

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

LESON, Thomas, Johannes, Alois  
TIEDTKE, BÜHLING, KINNE & PARTNER  
Bavariaring 4  
D-80336 München  
ALLEMAGNE

RECEIVED  
EINGETRACHTET

- 4. Dez 2001

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

03.12.2001

Applicant's or agent's file reference  
WO 24038

IMPORTANT NOTIFICATION

International application No.  
PCT/EP99/06951

International filing date (day/month/year)  
20/09/1999

Priority date (day/month/year)

Applicant

NOKIA NETWORKS OY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



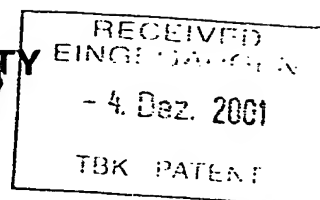
European Patent Office  
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Authorized officer

Teschauer, B

Tel. +49 89 2399-8231





## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WO 24038	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/06951	International filing date (day/month/year) 20/09/1999	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC H04B7/26		
Applicant NOKIA NETWORKS OY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 20/04/2001	Date of completion of this report 03.12.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Staeger, R Telephone No. +49 89 2399 8124 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP99/06951

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-15 as originally filed

**Claims, No.:**

1-16 as originally filed

**Drawings, sheets:**

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP99/06951

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-16
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-16
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**



**V. Reasoned statement with regard to novelty and inventive step:**

0. Reference is made to the following documents:

D1: US-A-5 394 158 (CHIA SI T S) 28 February 1995 (1995-02-28)

D2: WO 98 15150 A (ERICSSON TELEFON AB L M) 9 April 1998 (1998-04-09)

1. A general remark to the use of the wording "for" (e.g. in claim 9) could be helpful for the further examination process. According to PCT-Guidelines III-4.8 the wording "for" is read as "suitable for" and is therefore not necessarily limiting to the features following the wording "for".
2. The invention is related to a method and device for providing synchronization between a mobile network device and a network control device (BS) of a present radio network region (cell) after handover.

The closest prior art cited in the description (page 1, l. 14 to p. 4, l. 34) without indicating a document discloses that usually for synchronizing a mobile communication system it is necessary to determine the propagation delay between mobile and base station in order to know how much earlier a burst signal has to be sent to correct the propagation delay. When a handover at the boundary between two cells has been performed, the propagation delay to the new base station is maximum, but the exact value is unknown and needs to be determined as soon as possible in order to synchronize the transmit times.

Prior art techniques to determine just after handover the propagation time are too slow and have further disadvantages (see p. 4 of the application).

3. **Problem:**

To provide a method and apparatus for a fast detection of the propagation delay after having performed handover. Thereby eliminating also further drawbacks of the prior art.

4. **Solution:**

The following features render the method and the network control device (base station) inventive:

After handover, determining the source region where the mobile was situated before handover, based on the detected source region a start propagation value is provided for searching the actual propagation value for the present network region (present cell).

Thus, by providing a good start value a faster searching of the actual propagation value and a faster synchronization is possible.

- 5a. D1 discloses a handover **initiation** system for a radio network, the system measures the propagation delay of a signal between mobile and BS in order to determine the distance between them. In addition the signal strength received from the mobile user is measured. Moreover, for a lot of locations in the street area around the base station there are stored pairs of signal strength and propagation delay. These stored pairs are compared with the measured values, thereby the location of the mobile is determined and the base station is thereby able to decide when a handover initiation to a nearby base station is necessary. Since there occurs no handover in D1 prior to said measurements and comparisons, it appears to be **impossible** to interpret the means of D1 as e.g. being suitable for detecting a source region from which a handover has been performed. Thus to sum up, the system is all the time in a completely different state than those of the application and therefore it is considered that the means of D1 are not suitable for performing the detecting and determining related to a state after handover.
- b. D2 describes a method for determining the location of a mobile station. According to D2 (see e.g. p. 5, l. 13-30) a handover of the mobile station to a different base station is **initiated**, but not completed, which means that the mobile stays connected to the original base station. During the **not completed handover**, propagation delay measurements of at least two other base stations are performed to determine the location of the mobile station.

Thus, it is considered that also the means of D2 are not suitable for performing the detecting and determining of the application related to a state after handover.

**VII Certain defects in the international application:**

- 1a. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D2 is not mentioned in the description, nor are these documents identified therein.
- b. The applicant did not clearly indicate in the description which features of the subject-matter of claim 9 are already known from document D1 or D2; see the PCT Guidelines, III-2.3a.
2. A document reflecting the prior art described on page 3, line 5 to p. 4, l. 34, is not clearly identified in the description (Rule 5.1(a)(ii) PCT).
3. If necessary, the description should have been adapted to correctly reflect any changes in the scope of the claimed invention.

**VIII**

1. In claims 9 and 1 the antecedent of the expression "**actual** propagation delay value" is not completely clear. Apparently it is intended in claim 9, l. 29 "for searching an actual propagation delay value **for the present radio network region**". The applicants should have had considered such a clarification in claims 9 and 1.

## PCT REQUEST

1/4

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WO 24038

Original (for SUBMISSION) - printed on 20.09.1999 03:26:49 PM

0	For receiving Office use only	
0-1	International Application No.	PCT/EP 99 / 06951
0-2	International Filing Date	20 SEP 1999 (20. 09. 1999)
0-3	Name of receiving Office and "PCT International Application"	EUROPEAN PATENT OFFICE PCT INTERNATIONAL APPLICATION
0-4	Form - PCT/RO/101 PCT Request Prepared using	PCT-EASY Version 2.84 (updated 01.04.1999)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	European Patent Office (EPO) (RO/EP)
0-7	Applicant's or agent's file reference	WO 24038
I	Title of invention	A METHOD TO DECREASE SYNCHRONIZATION TIME IN HANDOVER
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	NOKIA TELECOMMUNICATIONS OY
II-5	Address:	Keilalahdentie 4 FIN-02150 Espoo Finland
II-6	State of nationality	FI
II-7	State of residence	FI
II-8	Telephone No.	+358 9 1807 0
II-9	Facsimile No.	+358 9 1807 496
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	VIHRIÄLÄ, Jaakko
III-1-5	Address:	Seelannintie 22 A 2 FIN-90800 Oulo Finland
III-1-6	State of nationality	FI
III-1-7	State of residence	FI

PCT REQUEST

WO 24038

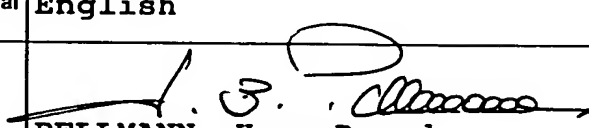
Original (for SUBMISSION) - printed on 20.09.1999 03:26:49 PM

IV-1	<b>Agent or common representative; or address for correspondence</b> The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	<b>agent</b>
IV-1-1	Name (LAST, First)	PELLMANN, Hans-Bernd
IV-1-2	Address:	Tiedtke-Bühling-Kinne et al. Bavariaring 4 D-80336 München Germany
IV-1-3	Telephone No.	+49 89 544690
IV-1-4	Facsimile No.	+49 89 532611
IV-1-5	e-mail	postoffice tbk-patent.com
IV-2	Additional agent(s)	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	TIEDTKE, Harro; BÜHLING, Gerhard; KINNE, Reinhard; GRAMS, Klaus; LINK, Annette; VOLLNHALS, Aurel; LESON, Thomas, Johannes, Alois; TRÖSCH, Hans-Ludwig; CHIVAROV, Georgi; GRILL, Matthias; KÜHN, Alexander; OSER, Andreas; BÖCKELEN, Rainer
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW SD SZ UG ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AL AM AT AU AZ BA BB BG BR BY CA CH&LI CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW

## PCT REQUEST

WO 24038

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V-5	<b>Precautionary Designation Statement</b> In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	<b>Exclusion(s) from precautionary designations</b>	NONE	
VI	<b>Priority claim</b>	NONE	
VII-1	<b>International Searching Authority Chosen</b>	European Patent Office (EPO) (ISA/EP)	
VIII	<b>Check list</b>	number of sheets	electronic file(s) attached
VIII-1	Request	4	-
VIII-2	Description	15	-
VIII-3	Claims	3	-
VIII-4	Abstract	1	03_wo24038a.txt
VIII-5	Drawings	6	-
VIII-7	TOTAL	29	
	<b>Accompanying items</b>	paper document(s) attached	electronic file(s) attached
VIII-8	Fee calculation sheet	1	-
VIII-16	PCT-EASY diskette	-	diskette
VIII-18	<b>Figure of the drawings which should accompany the abstract</b>	2	
VIII-19	<b>Language of filing of the International application</b>	English	
IX-1	<b>Signature of applicant or agent</b>		
IX-1-1	<b>Name (LAST, First)</b>	PELLMANN, Hans-Bernd	

## FOR RECEIVING OFFICE USE ONLY

10-1	<b>Date of actual receipt of the purported international application</b>	( 20.09.99 )	20 SEP 1999
10-2	<b>Drawings:</b>		
10-2-1	Received	✓	
10-2-2	Not received		
10-3	<b>Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application</b>		
10-4	<b>Date of timely receipt of the required corrections under PCT Article 11(2)</b>		
10-5	<b>International Searching Authority</b>	ISA/EP	
10-6	<b>Transmittal of search copy delayed until search fee is paid</b>		

POWER 93 / 00051

4/4

PCT REQUEST

WO 24038

Original (for SUBMISSION) - printed on 20.09.1999 03:26:49 PM

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
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# PATENT COOPERATION TREATY

From the:  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

LESON, Thomas, Johannes, Alois  
TIEDTKE, BÜHLING, KINNE & PARTNER  
Bavariaring 4  
D-80336 München  
ALLEMAGNE

RECEIVED  
EINGEGANGEN

- 6. Aug. 2001

TBK PATENT

## PCT

### WRITTEN OPINION

(PCT Rule 66)

Date of mailing  
(day/month/year)

03.08.2001

Applicant's or agent's file reference

WO 24038

**REPLY DUE**

**within 3 month(s)**  
from the above date of mailing

International application No.

PCT/EP99/06951

International filing date (day/month/year)

20/09/1999

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC

H04B7/26

Applicant

NOKIA NETWORKS OY et al.

1. This written opinion is the first drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain document cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

**When?** See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also:** For an additional opportunity to submit amendments, see Rule 66.4.  
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.  
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is:

3.11.01

WV 3.9. ✓

Name and mailing address of the international preliminary examining authority:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Staeger, R

Formalities officer (incl. extension of time limits)

Poquet Oliver, R  
Telephone No. +49 89 2399 2911





**I. Basis of the opinion**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

**Description, pages:**

1-15 as originally filed

**Claims, No.:**

1-16 as originally filed

**Drawings, sheets:**

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

## WRITTEN OPINION

International application No. PCT/EP99/06951

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

### V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

#### 1. Statement

Novelty (N)	Claims	
Inventive step (IS)	Claims	1-16 No
Industrial applicability (IA)	Claims	

2. Citations and explanations  
see separate sheet

### VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:  
see separate sheet

**V. Reasoned statement with regard to novelty and inventive step:**

1. Reference is made to the following documents:

D1: US-A-5 394 158 (CHIA SI T S) 28 February 1995 (1995-02-28)

D2: WO 98 15150 A (ERICSSON TELEFON AB L M) 9 April 1998 (1998-04-09)

2. A general remark to the use of the wording "for" (e.g. in claims 1 and 9) could be helpful for the further examination process. According to PCT-Guidelines III-4.8 the wording "for" is read as "suitable for" and is therefore not necessarily limiting to the features following the wording "for".

3a. Although D1 covers a handover initiation system, claim 9 is formulated in such a general manner that most of the features of said claim can be read from D1. In the following references to D1 will be indicated in brackets.

Document D1, in particular figure 4; col. 2, l. 44-61 and col. 3, l. 32-54; col. 5, l. 7 to col. 6, l. 8; col. 6, l. 50-64, discloses as in claim 9:

A network control device (Fig. 4, BS) of a present radio network region (radio cell), comprising

a detecting means (26, detects RSSI and propagation delay or timing advance both related to a certain path and cell where the mobile is travelling) suitable for detecting a source radio network region (source radio cell) from which a handover of a mobile network device (mobile) to a radio network region (further cell) will be performed,

a determining means (16) suitable for determining a start propagation delay value based on said detected source radio network region of said mobile station (store 16 is considered as suitable to provide propagation delay or distance values according to path or source cell), and

a search means (18, 26) for searching an actual propagation delay value (Timing advance and corresponding propagation delay) by using a search strategy based on the determined start propagation delay value (strategy: comparing stored pairs

of signal strength and propagation delay with measured pairs).

Claim 9 differs mainly from what is disclosed in D1 in the following feature:

- b. In claim 9 the cited means are acting in that manner after the handover has been performed whereas in D1 this acting is prior to handover.  
However, it is considered that in particular for an apparatus claim the time relationship of the claimed means is not really limiting the scope of the apparatus. It seems to be obvious to the person skilled in the art, to apply the apparatus dependent from the circumstances at any time and thus to arrive at a network control device according to claim 9.
- c. Furthermore, it seems to be possible to give for claim 9 an equivalent argumentation based on document D2 (p. 1, l. 7-9; p. 2, l. 27 to p. 3, l. 6; p. 5, l. 13 to p. 7, l. 16; p. 12, l. 5 to p. 13, l. 21).
- d. Claim 1:  
See remarks concerning corresponding apparatus claim 9.

Therefore, the subject-matter of claims 9 and 1 does not seem to be inventive (Article 33(3) PCT).

- 4. Prima facie dependent claims 2-8 and 10-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:  
Claims 2-4 and 10-12: These conditions for the propagation delay values seem to be implied in the sections of D1 and D2 as cited above.  
Claims 5-8 and 13-16 do not seem to go beyond routine design options for the skilled person.

## **VII Certain defects in the international application:**

- 1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art

disclosed in the documents D1-D2 is not mentioned in the description, nor are these documents identified therein.

2. A document reflecting the prior art described on page 3, line 5 to p. 4, l. 34, is not clearly identified in the description (Rule 5.1(a)(ii) PCT).
3. Independent apparatus claim 9 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1 or D2 or prior art as cited in the application) being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).

Furthermore, in the reply the applicants should indicate the document on which the two-part form is based on.

4. If necessary, the description should be adapted to correctly reflect any changes in the scope of the claimed invention.
5. In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.


# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 05 DEC 2001

Applicant's or agent's file reference WO 24038		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/06951	International filing date (day/month/year) 20/09/1999	Priority date (day/month/year)	
International Patent Classification (IPC) or national classification and IPC H04B7/26			
Applicant NOKIA NETWORKS OY et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand 20/04/2001		Date of completion of this report 03.12.2001	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer  Staeger, R  Telephone No. +49 89 2399 8124	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP99/06951

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-15 as originally filed

**Claims, No.:**

1-16 as originally filed

**Drawings, sheets:**

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP99/06951

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1-16
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-16
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations  
see separate sheet

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
see separate sheet

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
see separate sheet



**V. Reasoned statement with regard to novelty and inventive step:**

0. Reference is made to the following documents:

D1: US-A-5 394 158 (CHIA SI T S) 28 February 1995 (1995-02-28)

D2: WO 98 15150 A (ERICSSON TELEFON AB L M) 9 April 1998 (1998-04-09)

1. A general remark to the use of the wording "for" (e.g. in claim 9) could be helpful for the further examination process. According to PCT-Guidelines III-4.8 the wording "for" is read as "suitable for" and is therefore not necessarily limiting to the features following the wording "for".
2. The invention is related to a method and device for providing synchronization between a mobile network device and a network control device (BS) of a present radio network region (cell) after handover.

The closest prior art cited in the description (page 1, l. 14 to p. 4, l. 34) without indicating a document discloses that usually for synchronizing a mobile communication system it is necessary to determine the propagation delay between mobile and base station in order to know how much earlier a burst signal has to be sent to correct the propagation delay. When a handover at the boundary between two cells has been performed, the propagation delay to the new base station is maximum, but the exact value is unknown and needs to be determined as soon as possible in order to synchronize the transmit times.

Prior art techniques to determine just after handover the propagation time are too slow and have further disadvantages (see p. 4 of the application).

**3. Problem:**

To provide a method and apparatus for a fast detection of the propagation delay after having performed handover. Thereby eliminating also further drawbacks of the prior art.

4. **Solution:**

The following features render the method and the network control device (base station) inventive:

After handover, determining the source region where the mobile was situated before handover, based on the detected source region a start propagation value is provided for searching the actual propagation value for the present network region (present cell).

Thus, by providing a good start value a faster searching of the actual propagation value and a faster synchronization is possible.

- 5a. D1 discloses a handover **initiation** system for a radio network, the system measures the propagation delay of a signal between mobile and BS in order to determine the distance between them. In addition the signal strength received from the mobile user is measured. Moreover, for a lot of locations in the street area around the base station there are stored pairs of signal strength and propagation delay. These stored pairs are compared with the measured values, thereby the location of the mobile is determined and the base station is thereby able to decide when a handover initiation to a nearby base station is necessary. Since there occurs no handover in D1 prior to said measurements and comparisons, it appears to be **impossible** to interpret the means of D1 as e.g. being suitable for detecting a source region from which a handover has been performed. Thus to sum up, the system is all the time in a completely different state than those of the application and therefore it is considered that the means of D1 are not suitable for performing the detecting and determining related to a state after handover.
- b. D2 describes a method for determining the location of a mobile station. According to D2 (see e.g. p. 5, l. 13-30) a handover of the mobile station to a different base station is **initiated**, but not completed, which means that the mobile stays connected to the original base station. During the **not completed handover**, propagation delay measurements of at least two other base stations are performed to determine the location of the mobile station.

Thus, it is considered that also the means of D2 are not suitable for performing the detecting and determining of the application related to a state after handover.

**VII Certain defects in the international application:**

- 1a. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D2 is not mentioned in the description, nor are these documents identified therein.
- b. The applicant did not clearly indicate in the description which features of the subject-matter of claim 9 are already known from document D1 or D2; see the PCT Guidelines, III-2.3a.
2. A document reflecting the prior art described on page 3, line 5 to p. 4, l. 34, is not clearly identified in the description (Rule 5.1(a)(ii) PCT).
3. If necessary, the description should have been adapted to correctly reflect any changes in the scope of the claimed invention.

**VIII**

1. In claims 9 and 1 the antecedent of the expression "**actual** propagation delay value" is not completely clear. Apparently it is intended in claim 9, l. 29 "for searching an actual propagation delay value **for the present radio network region**". The applicants should have had considered such a clarification in claims 9 and 1.

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>WO 24038</b>	<b>FOR FURTHER ACTION</b>		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. <b>PCT/EP 99/ 06951</b>	International filing date (day/month/year) <b>20/09/1999</b>	(Earliest) Priority Date (day/month/year)	
Applicant <b>NOKIA NETWORKS OY</b>			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

**4. With regard to the title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

2  
☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

T/EP 99/06951

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04B7/26 H04J3/04 H04Q7/38 H04J3/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04B H04J H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 15150 A (ERICSSON TELEFON AB L M) 9 Apr11 1998 (1998-04-09) page 1, line 6-9 page 2, line 27 -page 3, line 6 page 5, line 13 -page 6, line 9 page 12, line 5 -page 13, line 13 page 17, line 12-21 -----	1-6,9-14
X	US 5 394 158 A (CHIA SI T S) 28 February 1995 (1995-02-28) column 1, line 7-9 column 2, line 44-61 column 3, line 32-54 column 5, line 15-25 column 5, line 66 -column 6, line 8 column 6, line 50-64 -----	1-4,9-12

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

28 Apr11 2000

Date of mailing of the international search report

08/05/2000

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Traverso, A

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

P/EP 99/06951

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
W0 9815150	A	09-04-1998	SE 506759 C	09-02-1998
			AU 4477997 A	24-04-1998
			CN 1231812 A	13-10-1999
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US 5394158	A	28-02-1995	AT 158131 T	15-09-1997
			AU 8230191 A	18-02-1992
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			DE 69127625 D	16-10-1997
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			GB 2263608 A,B	28-07-1993
			HK 133396 A	02-08-1996
			JP 6501347 T	10-02-1994
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